

URBAN LAND ABSORPTION STUDY

*Models To -- Economic conditions
Land use -- California -- Modesto*

Modesto Urban Area

Report Prepared by Modesto Planning Department

October 1973

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URBAN LAND ABSORPTION STUDY

Prepared for Council Public Projects Committee
by Modesto Planning Department, 10/73

This report attemptsttoanswerthree questions:

- 1) At what rate is land being committed to urban development in the Modesto urban area?¹
- 2) How much land in the urban area is either vacant or in agricultural use?
- 3) Based upon the growth rate, how long will the vacant and agricultural land supply the area's land needs?

1. RATE OF URBANIZATION

There are many possible methods of estimating a growth rate. Offhand, population increase would seem the most logical. But in this study, we are interested in growth in terms of acres of land. Instead of converting people to acres, it would be preferable to make an estimate based upon data collected in acres. The fewer the conversions (people to acres, building permits to acres, etc.) the less the projected growth rate will reflect assumptions and guesses and the greater the confidence we may have in the projection.

Our measurement of Modesto's growth rate, consequently, will be based upon final subdivisions. While final subdivisions do not guarantee that development will occur, they are usually considered a good indicator of the land utilization rate (especially when conditioned upon the installation of public improvements). In Modesto's case the data also indicates that building permits have kept pace with final subdivisions. Finally, final subdivision data is readily available for the entire urban area (both city and county).

As with all methods of projection, there are some problems with final subdivisions which should be clarified at the outset. First, parcel maps are not included in the final subdivision data. But parcel maps account for an insignificant number of residential lots.² Second, we are focusing only upon residential land needs and supplies in this study. The final subdivision data includes some commercial land and excludes some multi-family development. It is our belief, though, that the one compensates for the other to some degree. We further believe that in the outlying neighborhoods in the future about 50% of all multi-family development will in one way or another be included in a subdivision.³

¹The "urban area" is identical to the Ultimate Sewer Service Area

²Parcel maps are required for land division of four or less lots. The lots are frequently of large size and are often resubdivided in the future. In 1973, less than 10 actual residential lots have been created by parcel maps so far.

³For example, condominiums require a subdivision.

It will be assumed that single-family detached housing remains the most popular housing type despite recent increases in the numbers and percentages of multiple and single-family attached. The probable effect of this assumption is to bias the land needs figure upwards for if unit costs for single-family housing continue to rise, families may be forced out of the single-family detached market into the higher density attached market.

The following table characterizes final subdivisions for the urban area since 1950 by number of lots and acreage:

TABLE 1				
MODESTO			COUNTY ¹	
<u>Years</u>	<u>Lots</u>	<u>Acres</u>	<u>Lots</u>	<u>Acres</u>
1950-54	789	198.1	2,661	652.9
55-59	1,661	410.5	1,272	377.2
60-64	3,153	759.8	1,057	346.4
65-69	2,226	621.9	392	168.8
70-73 ²	4,726	1,034.3	566	125.4
<u>23.5</u>	<u>12,555</u>	<u>3,024.6</u>	<u>5,948</u>	<u>1,670.7</u>

¹Only that portion of County in ultimate sanitary sewer service area

²1973 figures to July only

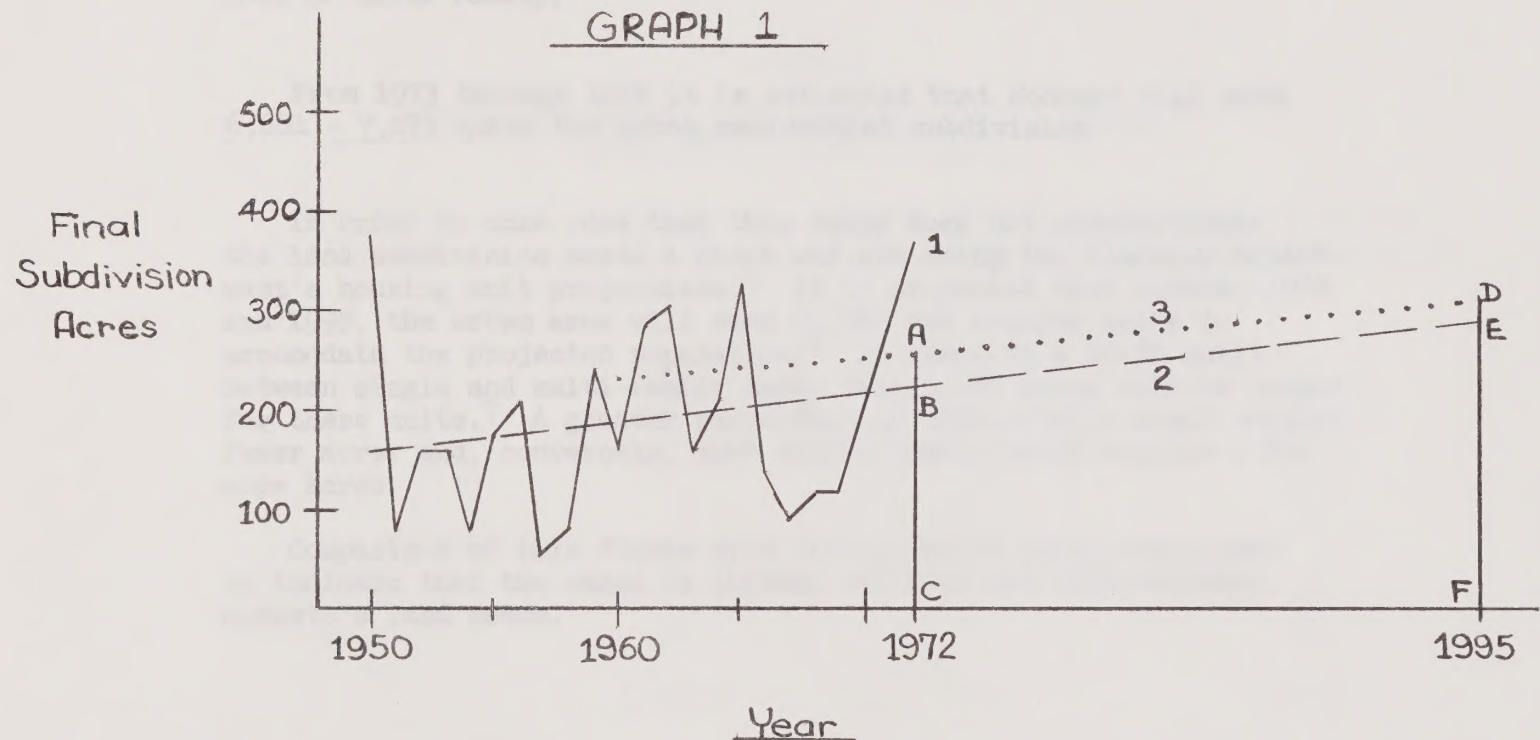
The growth rate is a crucial variable for this study and depending upon how this data is analyzed different rates can be calculated. For example, let us first use an averaging method. Table 2 shows the average growth rates in acres per year calculated using different time periods.

TABLE 2		
<u>PERIOD AVERAGED</u>	<u>LOTS/YEAR</u>	<u>ACRES/YEAR</u>
1950-73	787	202.6
1960-73	898	253.0
1965-73	931	230.0
1970-73	1,512	335.0

The basic flaw with using the averaging method is that it assumes no change in either the rate or the absolute number of acres subdivided per period of time. We believe that at least the absolute number of acres will increase per period of time (applying a constant rate to an ever expanding base). There is no case study literature to our knowledge which indicates whether or not the rate of subdivision increases as size increases. Therefore, our projection will assume a constant rate of subdivision but an ever increasing absolute acreage. By using the statistical method of least squares such a projection can be made to 1995 as shown in Graph 1.

The solid line (#1) shows the acres of final subdivisions per time period. The broken line (#2) fits the subdivision data onto a straight line using the least squares method based on all the data from 1950-1972. The slope of this line equals the subdivision rate. The dotted line (#3) is identical to #2 in all respects except that it uses the data from 1960-1972 only and therefore starts at a higher figure and is slightly less steep.⁴

Two straight lines are shown so that a range can be used for the acreage projection. The 1950-1972 figure will represent the conservative (or low) side of the range and the 1960-1972 figure, the liberal (or high) side of the range.



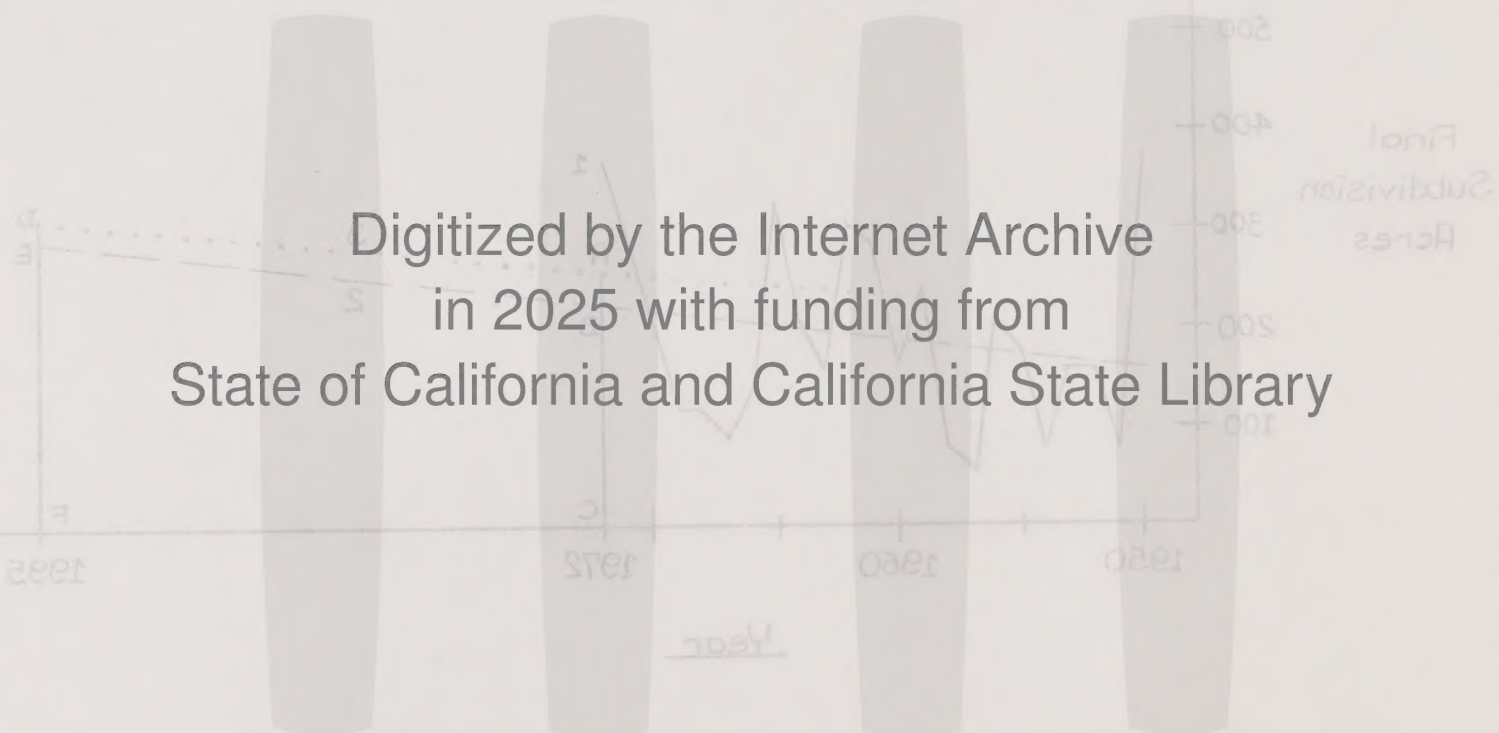
The lines projected to 1995 cannot be used to find the number of acres to be subdivided in any one year. Rather the areas under the lines estimate the total acreage to be subdivided from 1973-1995. Using the equations developed in the least squares calculations we can determine that the area of BCFE is 5,980 acres. ACFD contains 6,590 acres (trend based on 1960-1972 data only).

⁴The slope of the 1950-1973 line is $Y=155+3X$. The 1960-1973 line slope is $Y=229+2.3X$.

The solid line (W1) shows the area of final subdivisions per time period. The broken line (W2) shows the subdivision area onto a straight line using the least squares method based on all the data from 1950-1975. The slope of this line equals the subdivision rate. The dotted line (W3) is identical to W2 in all respects except that it uses the data from 1950-1975 only and therefore starts at a higher figure and is slightly less steep.

Two straight lines are shown so that a range can be used for the average projection. The 1950-1975 figure will represent the conservative (or low) side of the range and the 1950-1975 figure, the liberal (or high) side of the range.

GRAPH 1



The lines projected to 1985 cannot be used to find the number of acres to be subdivided in any one year. Neither the area under the lines estimate the total acres to be subdivided from 1975-1985. Using the equations developed in the least squares calculations we can determine that the area of W1 is 2,980 acres. W2 contains 6,390 acres (trend based on 1950-1975 data only).

The slope of the 1950-1975 line is $Y=259.2 \cdot X$. The 1950-1975 line slope is $Y=259.2 \cdot X$.

We assumed already that only 50% of new multi-family attached would be included in the future subdivision data. Therefore, it is necessary to estimate how many acres the remaining 50% will require.

In a later part of this report the ratios of various land uses to one another in a typical new neighborhood will be calculated (see page 10). Suffice it to say now that the ratio of single-family to multi-family acreage in a typical new neighborhood in Modesto is 4.3 to 1. For every 4.3 acres of single-family development we can anticipate 1 acre of multi-family. Based upon this calculated ratio and the assumption that only 50% of multi-family is included in the 5,980 - 6,590 acre range, we find that 89.6% of the range is single-family and 10.4% (or 621 - 685 acres) is multi-family. Therefore, another 621 - 685 acres must be added to the range to account for 100% of multi-family.

From 1973 through 1995 it is estimated that Modesto will need 6,601 - 7,275 acres for urban residential subdivision

In order to make sure that this range does not underestimate the land subdivision needs a check was run using the Planning Department's housing unit projections.⁵ It is projected that between 1970 and 1995, the urban area will need 40,480 new housing units to accomodate the projected population.⁶ If there is a 50-50 split between single and multi-family units then 5,170 acres will be needed for these units.⁷ A greater percentage of multi-family would require fewer acres and, conversely, more single-family would require a few more acres.

Comparison of this figure with the projected range would tend to indicate that the range is liberal and does not underestimate Modesto's land needs.

⁵Modesto Urban Area, Population and Housing Projections (Modesto Planning Department, April 1973).

⁶Modesto Urban Area, Population Projections (Modesto Planning Department, September 1972).

⁷SF = 5/acre, MF = 18/acre

2. VACANT AND AGRICULTURAL LAND SUPPLY

Table 3 shows the amount of agricultural and vacant land as of August 1973 within the 35 square mile current sanitary sewer service area (hereafter referred to as "current").^{8,9} Table 4 shows the same information for the 21 square mile area between the "current" boundary and the ultimate sanitary sewer service area (hereafter referred to as "ultimate").

Map 1 superimposes these boundaries on the General Plan Neighborhoods.

TABLE 3

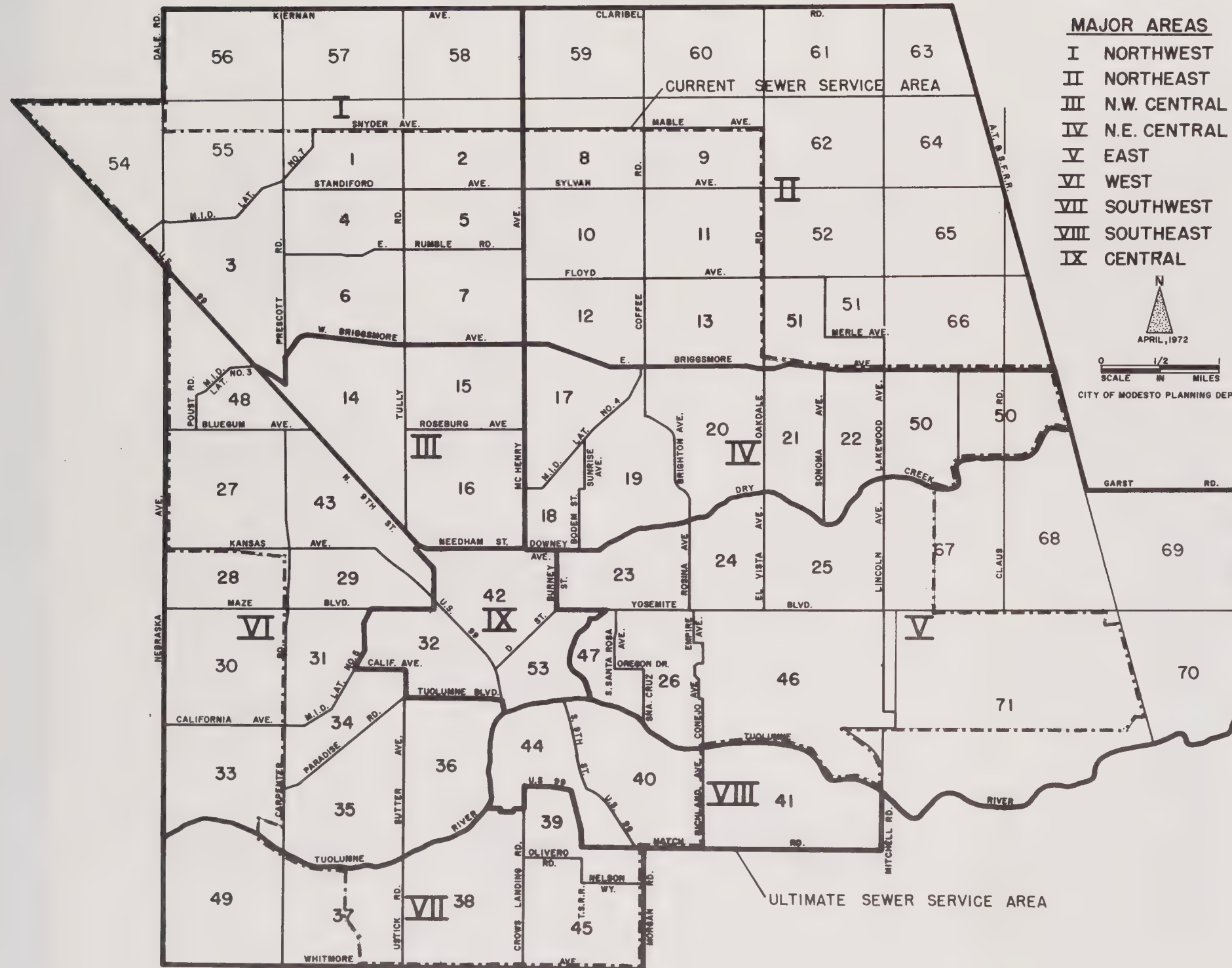
VACANT AND AGRICULTURAL LAND IN CURRENT SANITARY
SEWER SERVICE AREA BY AREAS¹

<u>General Plan Neighborhood</u>	<u>Agricultural Acres</u>	<u>Vacant Acres Zoned:</u>				<u>Total Vacant and Agricultural Acres</u>
		<u>RERES</u>	<u>CCOMM</u>	<u>IIND</u>		
<u>Area I (Northwest)</u>						
1 (Aqueduct)	254.9	7.5	0.6	-		263.0
2 (NW McHenry)	230.4	2.4	-	-		232.8
3 (Chrysler 99)	347.1	97.5	4.7	-		449.3
4 (Goldsworthy)	148.4	44.5	3.8	-		196.7
5 (Woodrow)	59.7	35.0	16.0	-		110.7
6 (Muncy-Everett)	24.2	40.9	6.5	-		71.6
7 (Beard)	-	20.5	5.6	-		26.1
54 (Pelandale)	486.4	-	-	-		486.4
55 (McKinney-Colony)	348.1	-	-	-		348.1
	<u>1,899.2</u>	<u>248.3</u>	<u>37.2</u>	<u>-</u>		<u>2,184.7</u>
<u>Area II (Northeast)</u>						
8 (NE McHenry)	241.0	68.4	51.6	-		361.0
9 (N.E. End)	170.8	15.1	10.1	-		196.0
10 (Sherwood)	77.2	32.6	1.3	-		111.1
11 (Coffee-Sylvan)	277.9	41.6	1.2	-		320.7
12 (Standiford)	40.4	19.2	11.8	-		71.4
13 (Floyd)	41.3	79.4	4.9	-		125.6
	<u>848.6</u>	<u>256.3</u>	<u>80.9</u>	<u>-</u>		<u>1,185.8</u>

⁸The current sewer service area is slightly larger than the 1965 General Plan area.

⁹The agricultural acreage is gross (includes area which would, if developed, be used for public rights-of-way). The vacant acreage is usually net (public rights-of-way subtracted from total).

MODESTO PLANNING AREAS



MAJOR AREAS

- I NORTHWEST
- II NORTHEAST
- III N.W. CENTRAL
- IV N.E. CENTRAL
- V EAST
- VI WEST
- VII SOUTHWEST
- VIII SOUTHEAST
- IX CENTRAL

NEIGHBORHOODS : 1970

- | | |
|--------------------------|---------------------|
| 1 AQUEDUCT | 54 PELANDALE |
| 2 N.W. MC HENRY | 55 MCKINNEY COLONY |
| 3 CHRYSLER - 99 | 56 MORROW |
| 4 GOLDSWORTHY | 57 STANISLAUS |
| 5 WOODROW | 58 KIERNAN |
| 6 MUNCY - EVERETT | 59 CLARIBEL |
| 7 BEARD | 60 HETCH HETCHY |
| 8 N.E. MC HENRY | 61 OAKDALE |
| 9 N.E. END | 62 MABLE |
| 10 SHERWOOD | 63 PLAINVIEW |
| 11 COFFEE - SYLVAN | 64 SANTA FE |
| 12 STANDIFORD | 65 CLAUD |
| 13 FLOYD | 66 MERLE |
| 14 N.W. CENTRAL | 67 YOSEMITE |
| 15 ROOSEVELT | 68 EMPIRE WEST |
| 16 ENSLEN - J.C. | 69 EMPIRE EAST |
| 17 E. MC HENRY | 70 EMPIRE SOUTH |
| 18 HIGH | 71 BEARD INDUSTRIAL |
| 19 MUIR | |
| 20 ROSE PARK | |
| 21 E. ORANGEBURG | |
| 22 SCENIC EAST | |
| 23 LA LOMA | |
| 24 E. LA LOMA | |
| 25 RIVERSIDE | |
| 26 AIRPORT | |
| 27 WOODLAND | |
| 28 W. MAZE | |
| 29 MAZE - WREN | |
| 30 VINEYARD | |
| 31 TWAIN | |
| 32 NEAR WEST SIDE | |
| 33 PARADISE WEST | |
| 34 BURBANK | |
| 35 BELLENITA | |
| 36 FAIRWAY | |
| 37 FAIRVIEW | |
| 38 BRET HARTE | |
| 39 SHACKELFORD | |
| 40 TUOLUMNE | |
| 41 RIVER EAST | |
| 42 DOWNTOWN | |
| 43 N. 99 INDUSTRIAL | |
| 44 S. 99 INDUSTRIAL | |
| 45 TIDEWATER INDUSTRIAL | |
| 46 BEARD INDUSTRIAL WEST | |
| 47 GALLO | |
| 48 COLLEGE WEST | |
| 49 CARPENTER SOUTH | |
| 50 LAKEWOOD | |
| 51 ORCHARD | |
| 52 FOR FUTURE USE | |
| 53 CENTRAL INDUSTRIAL | |

MAP NO. 1

CURRENT AND
ULTIMATE SEWER
SERVICE AREAS

ULTIMATE SEWER SERVICE AREA

TABLE 3 continued.

General Plan Neighborhood	Agricultural Acres	Vacant Acres RES	Zoned: COMM	IND	Total Vacant and Agricultural Acres
<u>Area III (N.W. Central)</u>					
14 (N.W. Central)		29.3	4.3	17.4	51.0
15 (Roosevelt)	0.1	4.4	3.1	-	7.6
16 (Enslen-JC)	1.0	17.2	1.0	-	19.2
	<u>1.1</u>	<u>50.9</u>	<u>8.4</u>	<u>17.4</u>	<u>77.8</u>
<u>Area IV (N.E. Central)</u>					
17 (E. McHenry)	38.8	13.1	3.6	-	55.5
18 (High)	-	1.9	1.0	-	2.9
19 (Muir)	19.9	5.5	7.6	-	33.0
20 (Rose Park)	158.2	55.6	0.7	-	214.5
21 (E. Orangeburg)	191.6	57.5	3.5	-	252.6
22 (Scenic East)	329.5	227.2	-	-	556.7
50 (Lakewood)	105.0	62.8	-	-	167.8
	<u>843.0</u>	<u>423.6</u>	<u>16.4</u>	<u>-</u>	<u>1,283.0</u>
<u>Area V (East)</u>					
23 (La Loma)	-	18.9	5.5	0.3	24.7
24 (E. La Loma)	128.4	11.8	1.9	-	142.1
25 (Riverside)	205.8	68.1	14.7	-	288.6
26 (Airport)	0.8	21.6	4.2	4.0	30.6
46 (Beard Ind. W.)	127.0	1.4	-	103.9	232.3
47 (Gallo)	108.0	-	-	48.7	156.7
71 (Beard Ind. E.) ²	859.6	39.5	-	-	899.1
	<u>1,429.6</u>	<u>161.3</u>	<u>26.3</u>	<u>156.9</u>	<u>1,774.1</u>
<u>Area VI (West)</u>					
27 (Woodland)	518.7	0.2	-	-	518.9
31 (Twain)	178.8	1.8	0.4	-	180.0
34 (Burbank)	56.6	4.4	0.4	-	61.4
35 (Bellenita)	198.5	4.1	2.7	-	205.3
36 (Fairway)	17.4	18.0	0.6	-	36.0
43 (N. 99 Ind)	192.1	0.2	5.4	41.9	239.6
29 (Maze-Wren)	51.5	48.9	-	-	100.4
	<u>1,213.0</u>	<u>77.6</u>	<u>9.1</u>	<u>41.9</u>	<u>1,341.6</u>

TABLE 3 continued.

<u>General Plan Neighborhood</u>	<u>Agricultural Acres</u>	<u>Vacant Acres Zoned:</u>			<u>Total Vacant and Agricultural Acres</u>
		<u>RES</u>	<u>COMM</u>	<u>IND</u>	
<u>Area VII (Southwest)</u>					
37 (Fairview) ³	136.4	15.4	8.1	-	159.9
38 (Bret Harte)	333.1	10.4	3.5	-	347.0
39 (Shackelford)	8.6	10.9	2.9	-	22.4
45 (Tidewater Ind)	344.4	51.6	2.9	32.0	430.9
	<u>822.5</u>	<u>88.3</u>	<u>17.4</u>	<u>32.0</u>	<u>960.2</u>
<u>Area VIII (Southeast)</u>					
40 (Tuolumne)	239.3	53.7	2.0	-	295.0
44 (S. 99 Ind.)	22.1	0.20.2	2.0	22.7	47.0
	<u>261.4</u>	<u>53.9</u>	<u>4.0</u>	<u>22.7</u>	<u>342.0</u>
<u>Area IX (Central)</u>					
32 (Near West Side)	15.5	4.1	1.4	-	21.0
42 (Downtown)	-	1.0	10.8	-	11.8
53 (Central Ind.)	83.1	0.9	1.0	3.3	88.3
	<u>98.6</u>	<u>6.0</u>	<u>13.2</u>	<u>3.3</u>	<u>121.1</u>
GRAND TOTALS	7,417.0	1,366.2	230.3	274.2	9,287.7

¹Source: Computer Print-Out, Modesto Land Use Deck of 8/73; no parcel size minimum.

²Only part of NBHD 71 is in current sewer area.

³Only part of NBHD 37 is in current sewer area.

TABLE 4

VACANT AND AGRICULTURAL LAND BETWEEN CURRENT AND
ULTIMATE SANITARY SEWER SERVICE AREA BY AREAS¹
(10 acre minimum parcel size)

<u>General Plan Neighborhood</u>	<u>Agricultural Acres</u>	<u>Vacant Acres²</u>	<u>Total Vacant and Agricultural Acres</u>
<u>Area I (Northwest)</u> (56, 57, 58)	1,497.2	-	1,497.2
<u>Area II (Northeast)</u> (51-2, 59-66)	4,018.5	-	4,018.5
<u>Area III (N.W. Central)</u> (none)	-	-	-
<u>Area IV (N.E. Central)</u> (none)	-	-	-
<u>Area V (East)</u> (67,68,69,70,71) ³	3,458.0	-	3,458.0
<u>Area VI (West)</u> (28, 30, 33)	889.9	-	889.9
<u>Area VII (Southwest)</u> (37) ⁴	330.3	44.7	345.0
<u>Area VIII (Southeast)</u> (41)	411.1 411.1	-	411.1 411.1
<u>Area IX (Central)</u> (none)	-	-	-
<u>TOTALS:</u>	<u>10,575.0</u>	<u>44.7</u>	<u>10,619.7</u>

¹Source: Stanislaus County Planning Department Land Use Survey (Summer, 1973).

²Total vacant regardless of zoning.

³Only part of NBHD 71 is outside the current sewer area.

⁴Only part of NBHD 37 is outside the current sewer area.

Within the current sewer service area there are a total of 9,274 vacant and agricultural acres (14.5 sq. miles). Between the "current" and "ultimate" boundaries are a total of 10,620 vacant and agricultural acres (16.6 sq. miles). In short, 41.4% of the current sewer service area is either vacant or in agricultural use while between the "current" and "ultimate" boundaries the respective figure is 79%.

Table 5 summarizes Tables 3 and 4.

TABLE 5

UNQUALIFIED AGRICULTURAL AND VACANT LAND ¹					
"CURRENT" AREA			AREA BETWEEN "CURRENT" AND "ULTIMATE" BOUNDARIES		
Area	Agricultural Acres	Vacant Res. Acres	Subtotal	Agricultural and Vacant Acres	TOTAL
I Northwest	1,900	250	2,150	1,500	3,650
II Northeast	850	260	1,110	4,020	5,130
III N.W. Central	--	50	50	-	50
IV N.E. Central	840	420	1,260	-	1,260
V East	1,430	160	1,590	3,460	5,050
VI West	1,210	80	1,290	890	2,180
VII Southwest	820	90	910	350	1,260
VIII Southeast	260	50	310	410	720
IX Central	100	10	110	-	110
	<u>7,410</u>	<u>1,370</u>	<u>8,780</u>	<u>10,630</u>	<u>19,410</u>

¹All figures in acres and rounded to nearest 10's

3. VACANT AND AGRICULTURAL LAND SUPPLY RECONSIDERED

It would be unrealistic to assume that all the vacant and agricultural land could or would be residentially developed. The acreage figures need to be qualified by realistic assumptions regarding the future

Assumptions

a) Assume that all land zoned commercial or industrial and all lands earmarked for industrial development on the 1965 General Plan will not be used for residential purposes. The only possible exception may be downtown. But since the long-run future of this area remains undecided, and the number of acres is relatively small, this question will be disregarded.

b) Assume that random single-family lots and 3-5 acre "interior" acreage parcels with single-family residences developed on the front do not make a significant contribution to the subdivision land needs defined earlier. All vacant residential lands totaling 20 acres or less in a neighborhood are consequently eliminated from the tally.¹⁰ These parcels total 190 acres or only 2% of the vacant residential and agricultural land within the current sewer area. Since many of these lots in the inlying neighborhoods may develop with high density residential there is a very heavy discount on the land supply of inlying neighborhoods. This discount is partially compensated for by the fact that no allowance is made for small random single-family lots and interior acreages which will not develop in the outlying neighborhoods.

c) Assume that 90% of the gross agricultural land in outlying neighborhoods could be utilized for residential development. This is a crucial assumption and will be examined further.

Eight of the City's newer neighborhoods (4-7, 10-13) were examined to determine the percentages of acreage in a fully developed neighborhood which are utilized for the various land uses.¹¹ The breakdown is as follows: 25% public rights-of-way (streets), 48.8% single-family detached, 11.2% multi-family attached, 15% all other uses (governmental, commercial, institutional, etc.). Approximately 85% of the gross acreage in a typical new neighborhood in Modesto is used for residential purposes (including public rights-of-way).

Our calculation, however, must take into account the problem of vacant commercial land in the "current" area. In calculating the amount of land with development potential we exclude vacant commercial acreage (assumption a). This excluded acreage will absorb a portion of the 15%

¹⁰In short, it is assumed that residential lands in a given neighborhood totaling 20 acres or less are collections of parcels 5 acres or less.

¹¹These NBHD's comprise the area bounded by Briggsmore, Oakdale, Standiford/Sylvan and Prescott.

for all other uses and so we must make an adjustment so as not to double count commercial acreage. The breakdown of the 75% of gross acreage remaining after deducting for streets is consequently modified and estimated to be: 50% single-family detached, 15% multi-family attached, 10% all other uses.

In summary, the 90% figure would appear realistic in light of the latest neighborhood development.

Table No 6 uses these assumptions to qualify the acreage figures in Table 3 and Table No 7 summarizes the data in Tables No 4 and 6 by areas:

TABLE NO. 6

EVALUATION OF AGRICULTURAL AND VACANT LAND IN CURRENT SANITARY SEWER SERVICE AREA AS POTENTIAL RESIDENTIAL SUBDIVISION LAND

GP/NEIGHBORHOOD	AGRICULTURAL ACRES			VACANT RES. ACRES		
	TOTAL	QUALIFIED	ASSUMPTION	TOTAL	QUALIFIED	ASSUMPTION
<u>Area I (northwest)</u>						
1 (Aqueduct)	254.9	229.4	c	7.5	-	b
2 (McHenry NW)	230.4	207.4	c	2.4	-	b
3 (Chrysler 99)	347.1	312.4	c	97.5	97.5	-
4 (Goldsworthy)	148.4	133.6	c	44.5	44.5	-
5 (Woodrow)	59.7	53.7	c	35.0	35.0	-
6 (Muncy-Everett)	24.2	21.8	c	40.9	40.9	-
7 (Beard)	-	-	c	20.5	20.5	-
54 (Pelandale)	486.4	160.5	33% ¹	-	-	-
55 (McKinney-Colony)	348.1	313.3	c	-	-	-
	<u>1,899.2</u>	<u>1,432.1</u>		<u>248.3</u>	<u>238.4</u>	
<u>Area II (Northeast)</u>						
8 (N.E. McHenry)	241.0	216.9	c	68.4	68.4	-
9 (N.E. End)	170.8	153.7	c	15.1	-	b
10 (Sherwood)	77.2	69.5	c	32.6	32.6	-
11 (Coffee-Sylvan)	277.9	250.1	c	41.6	41.6	-
12 (Standiford)	40.4	36.4	c	19.2	-	b
13 (Floyd)	41.3	37.2	c	79.4	79.4	-
	<u>848.6</u>	<u>763.8</u>		<u>256.3</u>	<u>222.0</u>	
<u>Area III (NW Central)</u>						
14 (NW Central)	-	-	-	29.3	29.3	-
15 (Roosevelt)	0.1	-	b	4.4	-	b
16 (Enslen JC)	1.0	-	b	17.2	-	b
	<u>1.1</u>			<u>50.9</u>	<u>29.3</u>	

GP/NEIGHBORHOOD	AGRICULTURAL ACRES			VACANT RES. ACRES		
	TOTAL	QUALIFIED	ASSUMPTION	TOTAL	QUALIFIED	ASSUMPTION
<u>Area IV (N.E. Central)</u>						
17 (E McHenry)	38.8	34.9	c	13.1		b
18 (High)	-	-	-	1.9	-	b
19 (Muir)	19.9	-	b	5.5	-	b
20 (Rose Park)	158.2	142.4	c	55.6	55.6	-
21 (E Orangeburg)	191.6	172.4	c	57.5	57.5	-
22 (Scenic East)	329.5	296.6	c	227.2	227.2	-
50 (Lakewood)	105.0	94.5	c	62.8	62.8	-
	<u>843.0</u>	<u>740.8</u>		<u>423.6</u>	<u>403.6</u>	
<u>Area V (East)</u>						
23 (La Loma)	-	-	-	18.9	-	b
24 (E. La Loma)	128.4	115.6	c	11.8	-	b
25 (Riverside)	205.8	185.2	c	68.1	68.1	-
26 (Airport)	0.8	-	b	21.6	-	a
46 (Beard Ind. W.)	127.0	-	a	1.4	-	b
47 (Gallo)	108.0	-	a	-	-	-
71 (Beard Ind. E.)	859.6	-	a	39.5	-	a
	<u>1,429.6</u>	<u>300.8</u>		<u>161.3</u>	<u>68.1</u>	
<u>Area VI (West)²</u>						
27 (Woodland)	518.7	466.8	c	0.2	-	b
31 (Twain)	178.2	160.4	c	1.8	-	b
34 (Burbank)	56.6	50.9	c	4.4	-	b
35 (Bellenita)	198.5	178.7	c	4.1	-	b
36 (Fairway)	17.4	15.7	c	18.0	-	b
43 (N99 Ind)	192.1	-	a	0.2	-	b
29 (Maze-Wren)	51.5	46.4	c	48.9	48.9	-
	<u>1,213.0</u>	<u>918.9</u>		<u>77.6</u>	<u>48.9</u>	
<u>Area VII (Southwest)</u>						
37 (Fairview) ³	136.4	122.8	c	15.4	7.7	note #4
38 (Bret Harte)	333.1	299.8	c	10.4	-	b
39 (Shackelford)	8.6	7.7	c	10.9	-	b
45 (Tidewater Ind)	344.4	450.2	a	51.6	-	a
	<u>822.5</u>	<u>430.3</u>		<u>88.3</u>	<u>7.7</u>	

GP/NEIGHBORHOOD	AGRICULTURAL ACRES			VACANT RES. ACRES		
	TOTAL	QUALIFIED	ASSUMPTION	TOTAL	QUALIFIED	ASSUMPTION
<u>Area VIII (Southeast)</u>						
40 (Tuolumne)	239.3	215.4	c	53.7	53.7	-
44 (S 99 Ind)	22.1	-	a	0.2	-	b
	<u>261.4</u>	<u>215.4</u>		<u>53.9</u>	<u>53.7</u>	
<u>Area IX (Central)</u>						
32 (Near W. Side)	15.5	-	b	4.1	-	b
42 (Downtown)	-	-	-	1.0	-	b
53 (Central Ind.)	83.1	-	See foot- note #5	0.9	-	b
	<u>98.6</u>			<u>6.0</u>		
<hr/>						
GRAND TOTALS:	7,417.0	4,802.1		1,366.2	1,071.2	

¹33% arbitrarily selected because the regional shopping center, adjacent commercial and multi-family are estimated to use 2/3 of area.

²NBHD 48 (College West) is in Area VI but was not included in land-use survey

³Part of this NBHD is outside the current sewer service area

⁴50% S-F land utilization arbitrarily assumed for this NBHD because of its remote location

⁵Area in Tuolumne River Flood Plain

The area between "current" and "ultimate" boundaries contains 10,575 acres of agricultural land and 44.7 acres of vacant land. Applying an unmodified assumption "c" (85% x 10,620 acres) we can conclude that 9,027 acres are available between "current" and "ultimate" for residential subdivision purposes.¹²

TABLE 7.

SUMMARY BY AREA OF QUALIFIED AGRICULTURAL AND VACANT LAND IN "CURRENT"
AND "ULTIMATE" BOUNDARIES WITH RESIDENTIAL SUBDIVISION POTENTIAL

(All figures rounded to nearest 10's)

Area	"CURRENT" AREA			AREA BETWEEN "CURRENT" AND "ULTIMATE" BOUNDARIES	
	Qualified Agr. Acres	Qualified Vacant Res.	Subtotal	Qualified Agr. & Vacant Acres	Total
I (Northwest)	1,430	240	1,670	1,270	2,940
II (Northeast)	760	220	980	3,420	4,400
III (NW Central)	-	30	30	-	30
IV (NE Central)	740	400	1,140	-	1,140
V (East)	300	70	370	2,940	3,310
VI (West)	920	50	970	760	1,730
VII (Southwest)	430	10	440	290	730
VIII (Southeast)	220	50	270	350	620
IX (Central)	-	-	-	-	-
	<u>4,800</u>	<u>1,070</u>	<u>5,870</u>	<u>9,030</u>	<u>14,900</u>

Table 7 indicates that the residential subdivision potential of the qualified agricultural and vacant residential land within "current" is approximately 5,870 acres. Adding 9,030 acres for the area between "current" and "ultimate" boundaries, we find that 14,900 acres exist in both the "current" and "ultimate" areas which could be developed residentially.

Map 2, "Vacant and Agricultural Lands in Current and Ultimate Sewer Service Areas, as of August 1973," locates these acres (with a 10 acre minimum parcel size) on a map of the urban area.

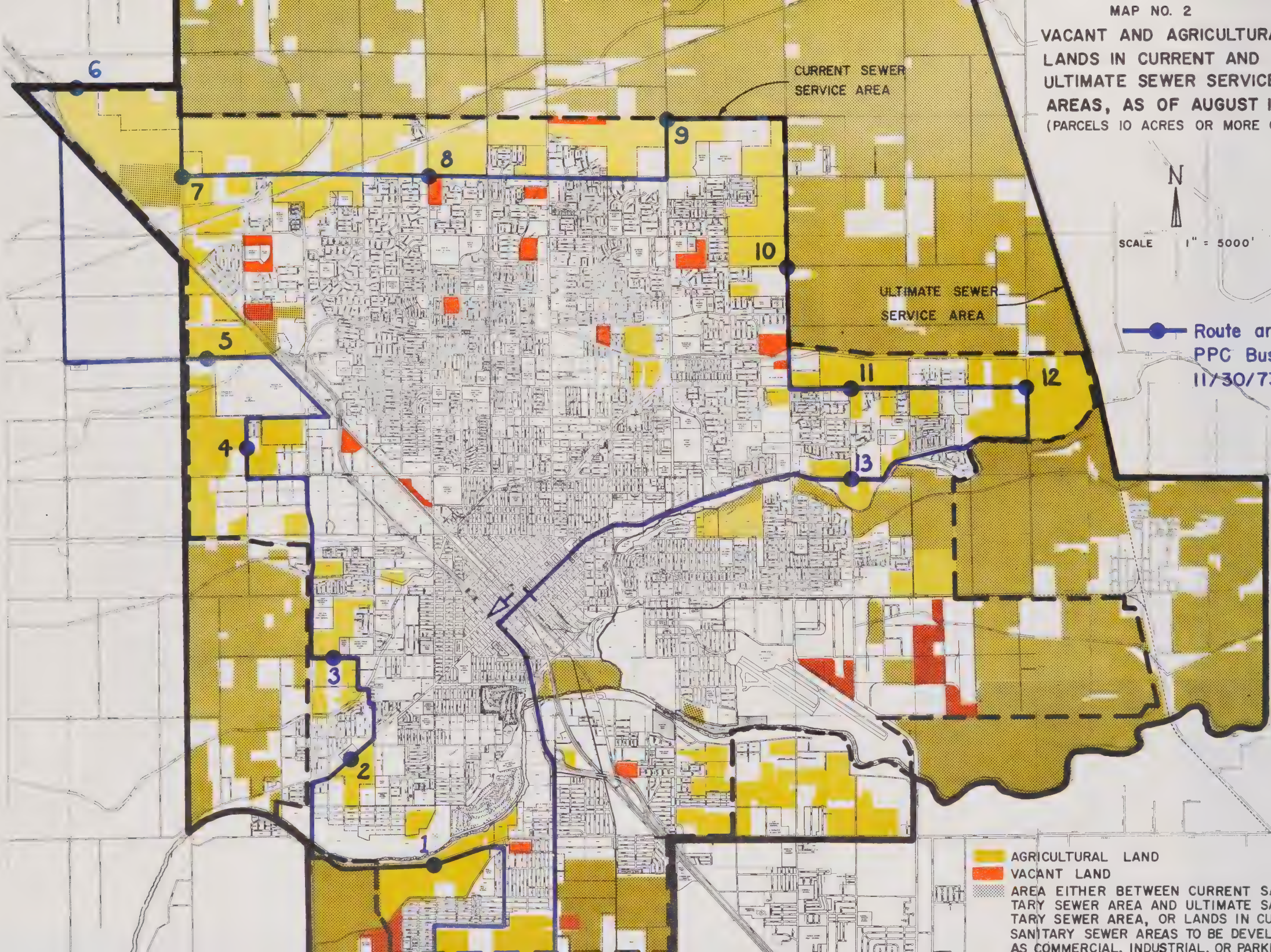
¹²Assumption "c" is only 85% because there is no need to compensate for existing vacant commercial acreage.

VACANT AND AGRICULTURAL
LANDS IN CURRENT AND
ULTIMATE SEWER SERVICE
AREAS, AS OF AUGUST 1973
(PARCELS 10 ACRES OR MORE ONLY)



SCALE 1" = 5000'

● Route and Stops for
PPC Bus Trip.
11/30/73



- AGRICULTURAL LAND
- VACANT LAND
- AREA EITHER BETWEEN CURRENT SANITARY SEWER AREA AND ULTIMATE SANITARY SEWER AREA, OR LANDS IN CURRENT SANITARY SEWER AREAS TO BE DEVELOPED AS COMMERCIAL, INDUSTRIAL, OR PARKLANDS.

4. Matching Qualified Agricultural and Vacant Land Supply with Rate of Urbanization

A summary of the findings so far:

- a. From 1973 through 1995 approximately 6,600 to 7,275 acres of land will be needed for urban residential subdivision in the Modesto Urban Area.
- b. There are approximately 15,870 "available" to meet this need in the "current" area.
- c. There are in addition approximately 9,030 acres "available" to meet this need in the area between the "current" and "ultimate".

Based upon the above one might conclude that:

- a. Each year approximately 290 to 315 acres of land will be needed. (Approximately correct based upon a 23 year need averaged on a per year basis. But in any one year the acres needed may shift dramatically above or below the average).
- b. Therefore, the 15,870 acres available in the "current" area should meet needs through the 1980's.
- c. Also, the 9,030 acres "available" between "current" and "ultimate" boundaries should meet city needs for an additional 28-30 years or until well after the turn of the century.

We wish to stress that such mathematical conclusions are theoretical only. There are many other assumptions or future happenings which could alter the numbers and conclusions. We will discuss a number of them in the following paragraphs. First, is it practical to assume 100% utilization of land in "current"? Second, is it realistic to assume that all areas of the community will grow and at an equal rate? Third, what influences that are even more difficult to quantify are at work?

Degree of Land Utilization

It is probably unrealistic to assume 100% utilization of all lands within "current" boundaries. Nevertheless, were it city policy to strive for 100% prior to extending sewer trunks, several externalities should be recognized. As with all public utility systems, the greater the percent of utilization the greater the economies to the city. From an agricultural perspective 100% utilization probably would mean a longer, useful life for agricultural production between the "current" and "ultimate" boundaries.

A policy of 100% utilization prior to sewer trunk extension would also have an effect upon the price of land and consequently housing. As the supply of developable land decreases the price will rise. At what time the increase due to the sewer extension policy will begin and of what magnitude it will be cannot be answered without considerable more study. Nevertheless, it is safe to assume that the price of land and housing will rise above and beyond that due to normal inflation (Note: Since land is only one of the cost factors in housing production the increase in housing price should be only a percentage of that for land).

Yet another variable which should be considered is the extent to which different degrees of land utilization will hinder or encourage redevelopment of the city's older neighborhoods or areas. And then how will these policies effect the property tax structure in the urban area and the distribution of this burden?

Finally, it should be noted that as the price of land increases so will the cost of purchasing school sites, parks and other public facilities.

In order to quantify or answer many of the points above it would be helpful to have a monitoring system based on specific standards to measure land increases based on inflation versus those based on a limited land supply. Modesto is in the enviable position of being able to add lands to its current sanitary sewer service area via sanitary sewer trunk extension should land values escalate unreasonably based on a real or imagined limited land supply.

Distribution of Growth

On the basis of current building trends and demand sentiments, and lacking some strong public and private action to the contrary, it is unrealistic to distribute future growth amongst all the areas of the community. Assuming that all areas of the community will not grow at the same rate, how much allowance should be made for areas with sluggish development? For this analysis the "current" area is divided into four quadrants.

The first quadrant is the growth quadrant. It is comprised of the northwest, northeast, northeast central and east sections. The quadrant contains 4,160 of the total of 5,870 acres (or approximately 71%).

The second quadrant encompasses the west and southwest sections and its development can only be termed as "sluggish" in terms of single-family housing. This quadrant contains 1,410 acres (or approximately 24% of the "current" total.)

The third quadrant is comprised only of the southeast section and orients toward the City of Ceres. Therefore, it is possible to say that the available land in this section should be disregarded since it will be supplying Ceres, not Modesto, with subdivision potential.¹³

The Northwest Central and Central sections make up the fourth quadrant. There is essentially no land available for residential development in this quadrant. If we assume that only the growth quadrant will be utilized for residential development then the total amount of available land within "current" is 4,160 acres. Roughly calculating again this supply of land (if total used and at the 90% residential capacity) could satisfy demand until the mid 1980's.

The same distinction can be drawn for the area between "current" and "ultimate" boundaries. The northeast, northwest and eastern sections would be considered the growth quadrant. The southeast would again be "given" to Ceres and the west would be eliminated due to Williamson Act contracts and the Gallo Family land holdings. Between the "current" and "ultimate" boundaries, then, would lie 7,630 acres in the growth quadrant (approximately 72% of the total acreage between "current" and "ultimate").

The separation by quadrants may be a useful way for the committee to analyze different policies. For example, suppose the city were to decide that the growth quadrants should continue to provide the vast majority of Modesto's development area. It then appears inevitable that large portions of the area between "current" and "ultimate" in the growth quadrant would have to be sewered in the future. It may also mean that other extensions in non-growth areas should be delayed or cancelled to support the policy of encouraging growth in the north and east. It may further mean that some "current" sewer trunks will never be utilized to capacity.

¹³The question arises whether Ceres proposed sphere or influence (which includes part of NBHD's 40 and 41) should be considered part of the urban area. Strictly speaking, it is not. But, if many Ceres residents are employed in Modesto, then we can conclude that land in Ceres (but outside the urban area) is being utilized to satisfy Modesto's needs. This question is not as important for projecting a growth rate as it is determining the amount of vacant and agricultural land available to satisfy growth needs. In addition, Oakdale, Waterford, Salida and Riverbank all have families dependent upon employment in Modesto and in a small way, represent residential land needs not supplied within Modesto's Urban Area.

On the other hand, if it were city policy to completely utilize the capacity of existing sewer trunks, then development would in theory be spread more evenly across all sections of the urban area. However, it would take strong action by other governmental bodies to enforce. For example, if builders are prevented from getting sewer connections outside the current boundary, and are unwilling to build in the non-growth sections of the city, then pressure for development in the county should increase significantly. This result would run counter to the goal of having all urban development within the city.

The various combinations of policy and their implications will not all be explored here. Hopefully, sufficient information is provided in this report for others to come to their own conclusions as to policy and implications.

What influences that are even more difficult to quantify are at work?

The preceeding analysis has tried to identify the major variables that will influence this city's rate of urban land absorption and policies regarding urban growth. There are others worth mentioning which the Planning staff discounts at this time, but which may loom as very significant in the future.

1) State imposition of agricultural land preservation

The State Office of Planning and Research (OPR) is charged with inventorying the agricultural land resources of the state. Once this task is finished the next step, presumably, is to determine through public policy what must be preserved. Urban needs versus agricultural needs must be debated, but it is our opinion that the state will enter the land-use field more positively in the near future. While the actual planning process will remain at the local level (City, County, SAAG) the state will probable have override power if the local levels do not perform satisfactorily (soon enough or comprehensively enough). National land-use legislation pending in Congress will definitely hasten this type of governmental structure. It is also a remote possibility that there may be a statewide initiative (similar to the coastal initiative) if the state does not perform satisfactorily (soon enough or comprehensively enough).

2) Federal limitation on urban growth

The stringent EPA standards released this summer jolted many in local government. Whether this is an attention getting device to initiate changes at a reasonable rate (with the EPA modifying its stands) or a strong mandate for rapid change only time will tell. Past federal policies encouraging decentralization (single-family house mortgage financing coupled with freeway financing) do not point to a quick turnabout of policy to one of urban growth limitation.

3) Bay Area or Los Angeles industrial "fall out"

A new "dry" industry (low sanitary sewer discharge) with large numbers of employees could relocate in the Modesto urban area at any time. There are several industrial areas which could attract such an industry. Were such an event to occur, it would probably have as big an impact as any of the other variables cited above.

5. Summary

This report has outlined basic data and assumptions in order to project Modesto's urban land needs and available land supply. It has emphasized that the simple mathematics of dividing available land supply by annual growth rate are unsatisfactory because of other variables. These other variables along with the basic data should be considered by the community for input into the public hearings or special meetings which will follow.

The variables that are most difficult to determine include how much land can be utilized in an urban area before prices rise unreasonably due to limited supply, to what degree should growth be distributed over the entire urban area, to what extent will state and federal policies come to bear on this matter, and what will happen if labor-intensive industrial or office developments relocate from the Bay Area or Los Angeles to Modesto?

Whatever urban growth policy evolves, as important as the policy will be the standards for monitoring its impact so that as assumptions are modified by reality, as unforeseen variables occur, as certain identified variables have a stronger influence than at first assumed, the urban growth policy can be modified with a better degree of certainty.

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2. Summary

This report has outlined basic data and assumptions in order to project Moberg's urban land needs and available land supply. It has emphasized that the simple mathematics of dividing available land supply by annual growth rate are unsatisfactory because of other variables. These other variables along with the basic data should be considered by the community for input into the public hearings or agenda meetings which will follow.

The variables that are most difficult to determine include how much land can be utilized in an urban area before prices rise unreasonably due to limited supply, to what degree should growth be distributed over the entire urban area, to what extent will state and federal policies tend to bear on this matter, and what will happen if the extensive industrial or office developments relocate from the Bay Area or Los Angeles to Moberg?

Whatever urban growth policy evolves, as important as the policy will be the standards for monitoring its impact so that as assumptions are modified by reality, as unforeseen variables occur, as certain identified variables have a stronger influence than at first assumed, the urban growth policy can be modified with a better degree of certainty.

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